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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/922,092	08/03/2001	Chi-Che Tsai	JCLA6561	8710
23900	7590	11/23/2005	EXAMINER	
J C PATENTS, INC.			SORRELL, ERON J	
4 VENTURE, SUITE 250			ART UNIT	
IRVINE, CA 92618			PAPER NUMBER	

2182

DATE MAILED: 11/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/922,092

Applicant(s)

TSAI, CHI-CHE

Examiner

Eron J. Sorrell

Art Unit

2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

DETAILED ACTION

*Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1,2,5, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Christiansen et al. (U.S. Patent No. 5,983,302 hereinafter "Christiansen").

3. Referring to claim 1, Christiansen teaches a method of bus priority arbitration driven by data used in a bus system that comprises a bus and a plurality of masters connected to the bus, wherein each master can output a request for a grant to use the bus, the method comprising:

sequentially responding to the request of each master according to a predefined orderly rotation, wherein the masters are considered as a group (see lines 34-56 of column 5);

Art Unit: 2182

stopping a response to the requests of the masters according to the predefined orderly when data for one of the masters is ready (see lines 27-37 of column 6);

attributing highest priority to the master which the data is ready for the grant to use the bus (see lines 27-37 of column 6);

performing the data transfer using the bus (see lines 27-37 of column 6); and

resuming a response to the requests of the masters according to the predefined orderly rotation (see lines 38-49 of column 6).

4. Referring to claim 2, Christiansen teaches the bus is a peripheral component interconnect (PCI) bus (see item labeled 12 in figure 1).

5. Referring to claim 5, Christiansen teaches the step pf resuming the response to the requests of the masters according to the predefined orderly rotation is performed from the master which request evaluation has been stopped (see lines 46-59 of column 7).

Art Unit: 2182

6. Referring to claim 6, Christiansen teaches the steps of resuming the response to the requests of the masters according to the predefined orderly rotation is performed from the master which data transfer has been performed (see lines 46-59 of column 7).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3,4, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christiansen in view of Bennett (U.S. Patent No. 6,697,904).

9. Referring to claim 3, Christiansen fails to teach the steps of responding to the requests of the masters and attributing the highest priority to the master are performed by a host bridge.

Christiansen, however does teach a host bridge (see item 16 in figure 1) and further teaches the arbitration logic can be

Art Unit: 2182

included within any module in the system (see lines 17-33 of column 5).

Bennett teaches in an 'analogous system, the arbitration logic, located within the host bridge (see item 57 in figure 5).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the method of Christiansen with the above teachings of Bennett. One of ordinary skill in the art at the time of the applicant's invention would have been motivated to make such modification because Christiansen teaches the arbitration logic can be within any module in the system and Bennett teaches that arbitration logic is conventionally located within a host bridge (see paragraph bridging columns 2 and 3).

10. Referring to claim 4, Christiansen teaches stopping the response to the requests of the masters is carried out by outputting a stop signal (see lines 27-37 of column 6; note the "ARBcrit" signal is a stop signal).

11. Referring to claim 7, Christiansen teaches a peripheral device interconnect structure comprising:

a bus (see item 12 in figure 1);

Art Unit: 2182

a plurality of peripheral devices connected to the bus, the peripheral devices are considered as a group, each of the peripheral devices embedding a master (see items 24 and 26 in figure 1 and lines 34-45 of column 4);

a host bridge connected to the bus (see item 16 in figure 1); and

arbitration logic operable to:

respond to a plurality of requests from each of the masters according to a predefined orderly rotation (see lines 34-56 of column 5);

receive information indicating that a data transfer for one of the master is ready (see lines 27-37 of column 6); and

stop responding to the requests from each of the masters according to the predefined orderly rotation when receiving information indicating that a data for one of the peripheral devices is ready in order to attribute the highest priority to the peripheral device for granting use of the bus (see lines 27-37 of column 6).

Christiansen fails to teach the arbitration logic is within the host bridge connected to the bus, however Christiansen does teach the arbitration logic can be included within any module in the system (see lines 17-33 of column 5).

Art Unit: 2182

Bennett teaches in an analogous system, the arbitration logic, located within the host bridge (see item 57 in figure 5).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the method of Christiansen with the above teachings of Bennett. One of ordinary skill in the art at the time of the applicant's invention would have been motivated to make such modification because Christiansen teaches the arbitration logic can be within any module in the system and Bennett teaches that arbitration logic is conventionally located within a host bridge (see paragraph bridging columns 2 and 3).

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Christiansen in view of Bennett as applied to claim 7 above, and further in view of Rossum (U.S. Patent No. 6,622,207).

13. Referring to claim 8, the combination of Christiansen and Bennett fails to teach the host bridge is connected to a data storage device from which the host bridge receives information indicating that a data transfer is ready.



Rossum teaches, in an analogous system, receiving information indicating that a data transfer is ready from a storage device (see lines 23-45 of column 18).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the combination of Christiansen and Bennett with the above teachings of Rossum. One of ordinary skill in the art at the time of the applicant's invention would have been motivated to make such modification in order to make better use of bus requests to ensure unneeded data is not fetched as suggested by Rossum (see lines 31-39 of column 3).

#### ***Response to Arguments***

14. Applicant's arguments filed 9/14/05 have been fully considered but they are not persuasive. The applicant argues:

1) Christiansen fails to teach treating all of the masters as a group, instead Christiansen teaches arranging the masters in two groups (see item 2 on page 5 of applicant's remarks); and

2) Christiansen fails to teach "stopping a response to the requests of the masters according to the predefined order when data for one of the masters is ready and attributing highest priority to the master which the data is ready for the grant to use the bus (see item 3 on page 6 of applicant's remarks).

15. **As per argument 1**, the Examiner disagrees. At lines 39-49 of column 8, Christiansen describes a situation in which all of the masters are treated as a group. Christiansen teaches, "In the case of non-real time operations, the bus master device of second priority can request access to the system bus using its request line, and can be awarded system bus control via the equal access arbitration scheme." At lines 47-54 of column 5, Christiansen teaches the equal access arbitration scheme is a round robin arbitration scheme. To implement a round robin arbitration scheme, one of ordinary skill in the art at the time of the applicant's invention would appreciate that all of the devices participating in this method of arbitration would necessarily need to be treated as a group in order to determine which master should be serviced next, which one is to be serviced after that, which one is to be serviced last before starting the rotation over again, etc.

16. **As per argument 2**, the Examiner disagrees. Christiansen teaches a bus system comprising real-time and non real-time I/O devices (see figure 2). Christiansen teaches "at least one device performs time-critical operations such as inputting/outputting serial or real time data streams and can

Art Unit: 2182

request relatively immediate bus system control via a dedicated control line (see 18-30 of column 3)." Finally Christiansen teaches *the devices request control of the system bus to read or write data from or to another device* (see lines 34-36 of column 4, emphasis added). Clearly these citations show that the devices only request access when a read or write is ready to be performed.

### **Conclusion**

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following U.S. Patent is cited to further show the state of the art as it pertains to bus arbitration:

U.S. Patent No. 6,202,101 teaches a system wherein the bus masters request access to the bus when data is ready (see lines 37-50 of column 2).

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened

Art Unit: 2182

statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eron J. Sorrell whose telephone number is 571 272-4160. The examiner can normally be reached on Monday-Friday 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on 571-272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EJS  
November 16, 2005



KIM HUYNH  
PRIMARY EXAMINER

11/17/05